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ABSTRACT

A project to improve college instruction in the basic and allied health sciences at New York Chiropractic College and the New York Institute of Technology is described. Attention was directed to: the kinds of resources colleges and professional schools provide to improve instruction; motivation of faculty to explore innovative or strategic teaching methods; and the type of system analysis faculty can use in evaluation of instruction. During 1981-1985 a one-day faculty development workshop was scheduled each year. Observations were also made of faculty teaching in lecture halls, laboratories, and clinics. The faculty member met with an educational consultant (a science education specialist), who provided information about instructional improvement and research papers. Based on the faculty member's comments during the conferences, the consultant prepared a "Checklist for Faculty Self-Evaluation," which is appended. Also employed was an instrument for student evaluation of faculty, "Student Description of Teaching," which is also appended. Also considered are: providing students materials in preparation for lectures, teaching from the simple to the complex, allowing students to ask questions during the lecture, motivating the listener, critical thinking, and selective listening. (SW)

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# IMPROVING COLLEGE FACULTY INSTRUCTION IN THE BASIC AND ALLIED HEALTH SCIENCES

**Nathan S. Washton**

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## A B S T R A C T

### IMPROVING COLLEGE FACULTY INSTRUCTION IN THE BASIC AND ALLIED HEALTH SCIENCES



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Many approaches are used to improve instruction in colleges and universities: faculty development workshops, seminars, observations of classroom teaching by administrators, peers, etc.,self-evaluation checklists, motivation activities such as granting awards or some form of recognition, participating at professional society conferences, individual conferences, use of outside consultants, and the use of student evaluation of faculty.

In teaching such courses as biology, embryology, biochemistry, anatomy, physiology, pathology, one of the many problems faced by students and faculty is the relationship of lectures to laboratory and clinical practice. This was one of several problems identified by over 1500 students' replies in a questionnaire which describes classroom teaching. Through the effective use of student evaluations and several procedures listed above, evidence was obtained to show that a faculty can improve the teaching of basic and allied health sciences.

# IMPROVING COLLEGE FACULTY INSTRUCTION IN THE BASIC AND ALLIED HEALTH SCIENCES

Nathan S. Washton*

## Problems

What kind of resources can colleges and professional schools provide to improve instruction in the basic and allied medical (health) sciences? How can a faculty be motivated to explore innovative or strategic methodology for effective teaching? What type of system analysis can a faculty use in evaluation of instruction without being threatened? These were the basic problems that were explored in this project.

## Assumptions

1. If faculty are invited to participate in the design of a model for the improvement of instruction, the greater degree of participation and cooperation will prevail.
2. The initial phase of faculty development for teaching effectiveness should be elective on the part of the faculty.
3. Faculty self-evaluation becomes the major goal towards the improvement of classroom teaching.
4. Faculty recognition of excellence in teaching motivates the improvement of instruction.
5. It would take at least three years to achieve this model of faculty development.

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6. Faculty are more likely to accept constructive suggestions for improving instruction from an outside consultant observer who is not in a position to threaten the instructor's re-appointment or promotion.

## Introduction

During the past four years, the writer was asked to observe faculty who teach basic sciences and the clinical sciences in lecture and laboratory classes. After the classroom observation, he had individual conferences with the faculty. The instructional staff were very much interested in what educational research recommends for effective teaching. One of the papers, for example, Judith Levinson-Rose and Robert J. Menges (1981) listed and briefly reviewed many studies dealing with the improvement of college instruction. They state: "Despite methodological flaws, available research can guide the design of teaching improvement programs."

In the Spring of 1981, the writer gave an educational workshop for faculty development to the core science, medical, chiropractic and clinical faculties at the New York Chiropractic College and the New York Institute of Technology. Some of the problems discussed were: planning instruction, strategies of instructional methodology, critical thinking, motivation, and evaluation of instruction.

Planning instruction emphasized the development of daily lesson plans which listed the topic, the objectives (cognitive, affective, and psychomotor), an outline of content to be taught, the method(s) of instruction, use of audio-visual aids, thought provoking questions, and an evaluation of what was taught such as a summary, quiz or an examination.

Strategies of instructional methodology included a discussion of the art of lecturing, recitation, discussion, laboratory,



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demonstrations, problem solving, case studies, research procedures, and student reports. The selection of appropriate method(s) of teaching was dependent upon or related to the objectives, the topic, and the effective use of this material by the instructor. Specific illustrations from physiology, histology, and health related sciences were discussed.

Critical thinking was explored in terms of the nature of the topic and the selected methodology of instruction which would develop critical thinking. The efficient use of problem solving, questionning (recitation), discussion and open-ended laboratory were examined as ways in which critical thinking can be developed.

Motivation is usually present prior to examinations and when the subject matter is related to the specific health needs of the patient or the practitioner. Student experiences were applied to basic concepts in physiology as a means of illustrating the functional and meaningful relationships of esoteric, scientific information and to the future use by the practitioner. For example, it was suggested that the application be taught whenever a core science topic or principle can be related to a chiropractic procedure or technic. In general, the emphasis was placed on getting the students to participate during the learning process in the classroom. Recommendations were made that students should initiate self learning activity under the guidance of faculty members. Self directed learning activities based upon student interests were found to be most effective.

The Association of American Medical Colleges made a survey of about 127 medical schools in the United States and the 16 in Canada. The report which appeared in 1984 states: ..."most medical students are taught by methods that make

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them passive recipients of information rather than active participants in their own intellectual growth." It is primarily during the preclinical years that the students are exposed to numerous hours of lectures. The massive problem of synthesizing the wealth of detail into meaningful concepts is a great challenge to the learner. In the 26 October 1984 issue of SCIENCE under "Medical Education under Fire", the statement appeared as follows: "Fear that students are being taught too many facts at the expense of understanding has been the focus or concern right along. ...A plea that medical students be taught to think rather than memorize is made with a call that medical education be freed from its 'present rigidity and uniformity'".

Evaluation represents a judgment of the degree of teaching and learning that occur during a given interval of time. Faculty were very much concerned about constructing a quiz or an examination that students consider a fair and accurate means of assessing their knowledge. Much care is required in the construction of the examination that can serve as a good sample of what was taught and learned. Various kinds of questions following Bloom's taxonomy were also discussed. Item analysis was also introduced. The pros and cons of various formulae for assigning a final grade were also explored. Formative and summative evaluations were considered as an integral part of instruction.

## First Phase of the Four Phase Project

During the past four years (1981-1985) an all day, educational workshop for faculty development was scheduled each year. The workshops served as a "springboard" for teaching effectiveness and they constituted the first phase of the project.

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Specialists in education, psychology, administration, student personnel services, science and medicine were invited to contribute their expertise at the workshops. Faculty participation occurred through discussion, group work, analysis of video cassettes of guided teaching to medical students and the writing of criteria for self evaluation of instruction.

As a result of the first workshop, faculty were asked to list topics for future workshops. The following were proposed:

1. How do professors make self-evaluations of their teaching? Evaluation of their students?
2. What do students observe in describing their teachers and their courses?
3. What is the impact of evaluation between professor and student?
4. What is the role of the professor in student conduct?
5. How does faculty-peer interaction affect student attitudes and knowledge? What is professionalism?
6. What types of faculty evaluations are used for teacher effectiveness?
7. How can students use self-evaluation?
8. What are the essential characteristics of a good test? Of a final examination?
9. What is a desirable basis for formulating a final grade?
10. What are the functions of a course syllabus? What should it contain?
11. How do performance objectives relate to other areas found in a course syllabus?

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## Second Phase

The second phase dealt with observations of faculty teaching in the lecture halls, laboratories, and clinics. As educational consultant, the writer kept confidential notes of each observation. Immediately after the observation, whenever possible, the faculty member met with the educational consultant (a science education specialist). At this conference, the faculty member was informed that this is a confidential meeting and no report of the observation or conference would be issued to any administrator. The faculty member was assured that the purpose is merely to serve as a resource person by providing research data pertaining to the improvement of instruction. The observer was not a threat to the instructor's reappointment or tenure

During the conference the consultant asked the instructor what were the strong features of the lecture. "Would you make any modifications if any, should you teach the same lesson again," the consultant asked. The instructor was complimented on the excellent features of the presentation. Based upon the faculty member's comments during the conferences, the consultant prepared a CHECKLIST FOR FACULTY SELF-EVALUATION. (See Appendix I)

Faculty members were introduced to research papers dealing with intructional procedures, effective use of lecturing, reasoning and critical thinking, student ratings, question-answer responses, problem solving, the professor as mentor, and evaluation of instruction when they applied to the instructor's comments. Many of these research papers were introduced during the workshops. However, selected ones were mentioned during the conference when they pertained specifically to the instructor's comments.


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During the first year, faculty were invited to meet with the consultant after the classroom observation. Of the thirty faculty observed, ten elected to accept the individual confidential conference with the consultant. After the second year, twenty-one faculty elected to meet in conference. At the third year interval, all of the faculty who were observed were scheduled for individual conferences. All attended except two individuals. The faculty expressed an enthusiasm for the information and data available for the improvement of instruction.

## Third Phase

In addition to faculty self-evaluation, a questionnaire "Student Description of Teaching" (See Appendix 2) was employed. This instrument was modified slightly from the one developed by Barbara Davis at the University of California (Berkeley) in the T.I.E.S. (Teacher Improvement Educational Services) program. The coefficient of correlation of the observations of classroom teaching made by the consultant and the student evaluation of the faculty was 0.66.

When the student evaluation form was first introduced, the faculty were asked to volunteer to have the questionnaire administered in their classes. About one third of the faculty requested this service. These evaluation forms were sent to the Educational Testing service (ETS) where they were tallied for the thirty items on the Likert Scale plus the composite scores for each faculty member. ETS provided the print outs for each faculty member. The consultant met with each individual faculty member to go over the results of the student evaluations. A constructive approach was used to interpret the scores in order to enable the faculty member to improve his/her instruction.

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Over a three year period, the annual "Student Description of teaching" print outs recorded an improvement on most of the thirty items for all classes with the exception of two. The faculty indicated that the consultant's interpretation of the print outs during the individual conference was helpful towards the improvement of instruction. This is in accord with the studies by Erickson and Erickson (1979) and Jacoby (1977).

## Fourth Phase

The fourth phase was a synthesis of the three phases: The activities of the faculty development workshops, classroom observations and individual conferences by the consultant, student evaluations of the faculty, and faculty self-evaluations. The synthesis represents an integration of all of the previous activities that were discussed individually with faculty after follow-up classroom observations. Summaries and recommendations were made at subsequent faculty development workshops.

## Discussion

Very intelligent graduate students are overwhelmed by the professors lectures consisting of minutiae of facts in undergraduate and graduate courses of anatomy, physiology, biochemistry, embryology, etc. Students pass the examinations but there is a limited retention of such facts. They need to be given basic concepts that are relevant and meaningful. An understanding of how the facts led to a concept or major idea should be emphasized. Wherever possible such ideas should be applied to real life situations. Research studies by Osterman (1982) indicate the importance

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of student participation before, during, and after lectures. Similar findings were noted in the research by Noll and Allen (1982) and Lysakowski and Walberg (1982). Many students in medical, chiropractic, dental, and other professional schools frequently wonder about the requirement to sit in class. They underline the textbook during the lecture since no additional material is presented other than what is in the text. They question the need for attending class.

Since 1974, the Feedback Lecture has been in use at Oregon State University. When students were given pre-tests, study guides, a page on objectives, advanced terminology, and an introductory theme before coming to the lecture, they performed very well. A change in student attitudes and learning was reported when students were more active during the learning process. According to Glassman and Pugh (1978) concept learning improved when definitions of concepts were given with examples.

Teaching from the simple to the complex can proceed efficiently if the simple concept is understood. Professors have learned the importance of encouraging students to ask questions so that no block to learning occurs during the lecture. At strategic times, they will ask the students "are there any questions" in order that the continued explanation of the new concept can be understood. For example, in biochemistry a structural formula for a new compound should be recognized before one can understand when it undergoes chemical change to produce a new compound. Hence, a question-answer session is very important as part of student evaluation.

Learning is most effective when students are motivated. The lecturer attempts to stimulate the listener with the hope that he/she will self-initiate, self-direct the learn-

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ing of new material. The lecturer merely "sets the stage" for learning to take place. To do this, various approaches are used: the "seductive" or "Dr. Fox effect" (see Naftulin 1973), the anecdote, personal experience, the demonstration, reading about a current event related to the topic or problem audio-visual aids, thought provoking questions and last but not least getting the listeners to participate at strategic times during the lecture. Tosteson (1981) Dean of Harvard Medical School writes:

> We know, and will readily acknowledge in theory, that the verb to teach means to promote, catalyze, encourage, and stimulate learning. But how often do we, in practice, urge our students to develop their own initiative, their own style of learning? In my experience, we much more frequently focus our attention on the capacity of the student to copy pictures that we present. We cannot remind ourselves too often that the goal of education is to promote learning, acts of learning, and styles of learning and not just the storage of important files of information.

"Educational Seduction" or the "Dr. Fox Effect" is based on a research study to determine the effect of an instructor personality on student evaluations. In this study a professional actor was the lecturer and was introduced to the students as Dr. Myron L. Fox. The conclusion of this study stated that even when the content of the lecture was missing the students were under the illusion that they learned the content. Students were "seduced" by the personality, wit, and authority of the lecturer. Other studies by Sheehan (1975), Frey (1978), and Kaplan (1974) gave mixed reactions to this conclusion in which questions were raised about valid measures of teacher effectiveness, lack of student participation, inadequate experimental controls, etc.

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There is a trend in continuing education in the health sciences to provide staff members with seminars and educational workshops. Instructional personnel are interested in improving their skills in the teaching-learning process. It is interesting to compare the golfer without formal instruction with one who received a number of hours of instruction from a pro. The one without formal instruction slams the ball and eventually may become a good golfer. The one with professional instruction will develop more rapidly as a result of a more efficient learning process.

The skills in teaching information dealing with abstract theories in the sciences or in medicine are different from the skills needed to teach a laboratory procedure. Lectures, demonstrations, and laboratory are effective instructional procedures for their specific objectives. Other methods of teaching such as problem solving, case study, research, and historical investigations can serve as very useful techniques to accomplish other objectives. There is a difference between the cognitive domain and the psychomotor domain of educational objectives. Accordingly, the instructional methodology should vary in accordance with the objectives.

If every listener were to hear and understand what the lecturer says, then it would be unnecessary to examine teaching methodology. Unfortunately, assumptions are made that cannot be substantiated for all listeners. For example, listening is learning. Not all members of an audience hear everything stated by the lecturer. People are selective listeners and hear what they want to hear. They will remember best the things that they like to hear which are in accord with their own thinking. If the idea presented is not in agreement with the listener then the tendency is either not to hear, or reject the idea, or start devloping arguments against

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the idea that was presented.

Adults behave or respond to the lecturer according to their knowledge, experience, and feeling. If a listener has little knowledge, some experience and intense feelings, he or she is apt to say "down with so and so" or simply disagree with the lecturer. On the other hand, if the listener has a very scholarly background with little or no experience, the listener may accept the proposed ideas with little or no action. Intelligent social action will usually result from the person who has a good combination of experience, knowledge, and positive feelings.

What causes the listener to become highly selective in accepting new information or concepts? The listener may have a personality with a high degree of rigidity. This person will find it extremely difficult to accept an idea which is in conflict with the one he or she possessed for many years. Adults cling tenaciously to their convictions.

The lecturer influences student attitudes. Although the professor of anatomy is concerned with teaching the anatomy of the head region or the voluntary muscles with their origins and insertions, inevitably student attitudes are formed by the manner in which the presentation is made. Facial expressions, use of language, body language, interaction with students, laboratory odors, and condition of cadavers are only a few items that affect student attitudes which may have a profound effect in the learning process.

Bloom's taxonomy of educational objectives lists the three domains as cognitive, affective, and psychomotor. The cognitive or informational teaching-learning process usually develops to various degrees depending upon the nature of the lecture content, the lecturer, and the type of response

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by the learner. The less the degree of rigidity in student and professor personality, the more suitable will the environment be for teaching critical thinking.

At West Virginia University, Moll and Allen (1982) report that short video presentations in biology classes influenced critical thinking. Students made actual observations, analyzed data, and performed critical thinking rather than merely receiving "correct information". Wherever needed, tables and graphs were also used to make interpretations and predictions. The study indicates that through the use of appropriate materials and opportunities, students can be taught to improve their critical thinking ability. The learning potential is much greater when students are active learners instead of passive recipients in the lecture halls. The affective domain emphasizes attitudes, emotions, and interests. Such attitudes are related to critical thinking and the flexibility of personality is an asset to critical thinking.

The psychomotor domain is very vital in training the students in the health sciences. The ability to use medical instruments and to manipulate the spine or perform other physical adjustments can be learned through demonstrations and laboratory teaching. These psychomotor activities demand that students not only have excellent opportunities to observe very clearly the demonstrations but also to be able to perform and duplicate the various skills needed. This type of teaching for the psychomotor and affective objectives requires instructional methodologies that go beyond the lecture.

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## Recommendations

Faculty input is an important ingredient for faculty development-for the improvement of instruction. This can be accomplished through the use of educational workshops, observations of classroom instruction by non-threatening, outside consultants, confidential conferences of a supportive and helpful nature, and faculty self-evaluation. More studies are needed such as those being made by Barbara Davis at the University of California (Berkeley) so that we can learn more about learning effectiveness. Greater care is needed to recognize the individuality of faculty members and their specific problems as well as the needs of individual students. Control groups are needed to compare the differences in faculty development and to note the impact, if any, on student achievement as a result of such programs.

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APPENDIX I

## CHECKLIST FOR FACULTY SELF EVALUATION

### A. PLANNING INSTRUCTION

1. Did I prepare an outline (written or mental) for class instruction which:
   a. lists the major objective(s) in the form of an important concept, principle, skill(s), attitude(s) to be developed?
   b. lists the specific instructional methods or procedures such as lecture, analogy, demonstration, laboratory activity, case study, use of audio-visual aids (cassette, tape, slide, overhead projector, video screen, film, chart, model, etc.)
   c. contains an outline of what will appear on chalkboard emphasizing correct spelling of new vocabulary, definitions, major concept, drawing(s) or sketches of anatomical parts or processes with labels?
   d. indicates an appropriate problem, if applicable, or question(s) that are relevant to the chiropractic practice?
   e. indicates formative evaluation in the form of questions, discussions and observations.

2. Did I check with multi media personnel to determine which audio-visual aids are available (cassettes, video tapes, slides, films, models, etc.) for my lectures, laboratory and demonstrations for the next few weeks?

3. Do I have a recent research study or scientific paper on the topic of the day that I could bring to the attention to my students?

4. Do I know my students general background of basic sciences to help me plan the appropriate selection of content and material for instruction?

5. Have I examined the reading assignments to be made and appropriate suggestions for student learning?

### B. CLASSROOM INSTRUCTION

1. Did I look over my plans and/or materials for instruction?

2. Am I using the chalkboard in accordance with my plan? OR Handout OR Transparencies
   a. correct spelling of new vocabulary
   b. headings or titles when listing items 1,2,3, etc.

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c. legible, written material for correct size to be viewed throughout the classroom
d. drawings or sketches that are clear, visible with lables

3. Am I maintaining professional student conduct at all times and also have a sense of humor?

4. Am I presenting the lecture in class or explainations in laboratory in a clear, logical and analytical manner?

5. Do I ask if there are any questions and do I answer them in a manner which promotes student understanding? If class time does not permit answers to certain questions at the moment, what provisions do I make? After class, next meeting, reading etc.

6. Do I want students to take notes and does my rate of speech permit students to write notes efficiently without boring them?

7. Can the person talking (professor or student) be:

   a. Heard at all times by <u>all</u> students? microphone?
   b. Am I or the student talking in a low voice to only one student in answering a question and as a result I lose the attention of the whole class?
   c. Do I ask students to <u>Speak louder</u> each time when he/she cannot be heard at all times?

8. Do I ask a number of thought provoking questions in addition to simple, factual questions?

9. Is the demonstration visible to all students situated throughout the classroom?

   a. Is a platform needed to raise the patient's table?
   b. Should I have all students come forward?
   c. Should I offer another position or two of patient and myself so that students can see the various positions of hands, arms, legs, head, pressure points, etc.

10. Whenever possible, am I making instruction relevant to chiropractic practice?

C. <u>EVALUATING INSTRUCTION</u>

1. Am I observing the faces of my students to detect if they exhibit a lack of understanding or if they are bored?

2. Is my level of instruction appropriate to the minimum eligible requirements and stimulating enough to carry the students with more advanced background?


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3. Am I evaluating student understanding of the lecture, laboratory, or demonstration by the kind of questions and answers they give in class?

4. Do I present questions at strategic times to sample student learning?

5. In laboratory, do I observe the skill and performance by students such as the use of the microscopic material, student use of palpation, manipulation of patients, a pencil marker to locate various anatomical parts, proper use of intruments and do I correct the various faults by actually showing the student the correct manipulation or skill?

6. Do I give practicals periodically by making use of models, lab materials, etc.?

7. a. In preparing written tests, is there a balance of class material and reading assignments?
   b. Is the level of difficulty of the questions in line with what is being taught?
   c. Am I requiring the students to maintain a professional conduct during examinations?
   d. In my humble judgement, do I assess the total work of the student in giving a final grade?
   e. Did I give careful thought in preparing the nature of the questions on the examination?

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NEW YORK CHIROPRACTIC COLLEGE

STUDENT DESCRIPTION OF TEACHING

Department _____ Date _____

Course _____

Instructor _____ Trimester _____

Your instructor will appreciate an honest, serious response so that (s)he may self-evaluate the teaching of the course. Only through a professional, sincere, and constructive response on your part will it be possible for the instructor to consider changes.

This questionnaire is being provided to you at this point in the trimester because 4 to 6 weeks are required to compile the results.

I. The following items reflect some of the ways teachers can be described. For the instructor named above, please circle the number which indicates the degree to which you feel each item is descriptive of him or her. In some cases, the statement may not apply to this individual. In these cases, check "Doesn't Apply" or "Don't Know".

| | Not at all Descriptive | | | | Very Descriptive | Doesn't Apply or Don't Know |
|---|---|---|---|---|---|---|
| 1. Discusses points of view other than his/her own | 1 | 2 | 3 | 4 | 5 | ( ) |
| 2. Discusses pro/cons of various theories | 1 | 2 | 3 | 4 | 5 | ( ) |
| 3. Discusses recent developments in the field | 1 | 2 | 3 | 4 | 5 | ( ) |
| 4. Gives references for additional student research | 1 | 2 | 3 | 4 | 5 | ( ) |
| 5. Emphasizes conceptual understanding | 1 | 2 | 3 | 4 | 5 | ( ) |
| 6. Explains clearly | 1 | 2 | 3 | 4 | 5 | ( ) |
| 7. Is well prepared | 1 | 2 | 3 | 4 | 5 | ( ) |
| 8. Keeps lectures concise and to the point | 1 | 2 | 3 | 4 | 5 | ( ) |
| 9. Summarizes major points | 1 | 2 | 3 | 4 | 5 | ( ) |
| 10. States objectives for each class session | 1 | 2 | 3 | 4 | 5 | ( ) |
| 11. Identifies what he/she considers important | 1 | 2 | 3 | 4 | 5 | ( ) |
| 12. Encourages class discussion | 1 | 2 | 3 | 4 | 5 | ( ) |
| 13. Invites students to share their knowledge and experiences | 1 | 2 | 3 | 4 | 5 | ( ) |
| 14. Invites criticism of his/her own ideas | 1 | 2 | 3 | 4 | 5 | ( ) |

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| | | Not at all Descriptive | | | | Very Descriptive | Doesn't Apply or Don't Know |
|---|---|---|---|---|---|---|---|
| 15. | Recognizes if the class in understanding him/her or not..... | 1 | 2 | 3 | 4 | 5 | ( ) |
| 16. | Has students apply concept to demonstrate understanding..... | 1 | 2 | 3 | 4 | 5 | ( ) |
| 17. | Knows when students are bored or confused..... | 1 | 2 | 3 | 4 | 5 | ( ) |
| 18. | Has genuine interest in students..... | 1 | 2 | 3 | 4 | 5 | ( ) |
| 19. | Gives personal help to students having difficulties in course..... | 1 | 2 | 3 | 4 | 5 | ( ) |
| 20. | Relates to students as individuals.... | 1 | 2 | 3 | 4 | 5 | ( ) |
| 21. | Is accessible to students out of class | 1 | 2 | 3 | 4 | 5 | ( ) |
| 22. | Has an interesting style of presentation..... | 1 | 2 | 3 | 4 | 5 | ( ) |
| 23. | Is enthusiastic about his/her subject. | 1 | 2 | 3 | 4 | 5 | ( ) |
| 24. | Varies the speed and tone of his/her voice..... | 1 | 2 | 3 | 4 | 5 | ( ) |
| 25. | Has interest in and concern for the quality of his/her teaching..... | 1 | 2 | 3 | 4 | 5 | ( ) |
| 26. | Motivates students to do their best work..... | 1 | 2 | 3 | 4 | 5 | ( ) |
| 27. | Gives interesting and stimulating assignments..... | 1 | 2 | 3 | 4 | 5 | ( ) |
| 28. | Gives examinations requiring thinking beyond mere memory of the course.... | 1 | 2 | 3 | 4 | 5 | ( ) |
| 29. | Gives examinations permitting students to show understanding of basic principles..... | 1 | 2 | 3 | 4 | 5 | ( ) |
| 30. | Keeps students informed of their progress..... | 1 | 2 | 3 | 4 | 5 | ( ) |

II. 1. Considering both the limitations and possibilities of the subject matter and course, how would you rate the overall teaching effectiveness of this instructor?

| Not at all Effective | | | Moderately Effective | | | Extremely Effective |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

2. Did the course contain material pertinent to the structure of the course as stated in the course outline?

| Not at all Worthwhile | | | Moderately Worthwhile | | | Extremely Worthwhile |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |



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